

# **MANUFACTURE OF PRESS PLATE FOR LITHOGRAPHIC PRINTING PLATE, MANUFACTURE OF PRINTED MATTER, AND AUTOMATIC PRINTING MECHANISM OF PRINTER**

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**Inventor:** ISHII NOBUYUKI  
**Applicant:** KONISHIROKU PHOTO IND  
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## **Abstract of JP2000052634**

**PROBLEM TO BE SOLVED:** To provide a manufacturing method of the press plate of a lithographic printing plate, in which an ink roller, a dampening water and an ink are checked from being polluted by a developing part, and a normal printed matter can be obtained in a short time, the manufacturing method of a printed matter, and an automatic printing mechanism of a printer. **SOLUTION:** A lithographic printing plate, which can be developed with water or on a printer, is developed on the offset printer in the following procedures: at least either one of heat and light is given in an image-like fashion; a lithographic printing plate is installed onto the plate cylinder of the printer; the offset printer is started and an ink roller is not in contact with the plate cylinder; the plate cylinder is started and the dampening water roller is brought into contact with the plate cylinder so as to feed a dampening water to the plate cylinder, and finally the lithographic printing plate is developed through a stage for transferring at least some part of a developing part onto an accepting element (a printing paper).

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(71) 出願人 000001270

コニカ株式会社

東京都新宿区西新宿1丁目26番2号

(72) 発明者 石井 信行

東京都日野市さくら町1番地 コニカ株式会社内

(74) 代理人 100073210

弁理士 坂口 信昭

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(54) 【発明の名称】 平版印刷版の刷版の製造方法、印刷物の製造方法及び印刷機の自動印刷機構

(57) 【要約】

【課題】 インキローラ、湿し水及びインキへの現像部の汚染を抑制し、正常な印刷物を短時間で得ることができる平版印刷版の刷版の製造方法、印刷物の製造方法及び印刷機の自動印刷機構を提供する。

【解決手段】 水による現像が可能或いは印刷機上で現像が可能な平版印刷版を以下の手順により、オフセット印刷機上で現像することを特徴とする平版印刷版の刷版の製造方法である。

① 該平版印刷版に熱/光の少なくとも一方のエネルギーを画像状に与える、

② 印刷機の版胴に該平版印刷版を設置する、

③ オフセット印刷機を始動し、インキローラは、版胴に接触させないで、

④ 版胴を回転させ、湿し水ローラを版胴に接触させ湿し水供給する、

⑤ 次いで、受容要素 (印刷用紙) に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像する。

【特許請求の範囲】

【請求項1】水による現像が可能或いは印刷機上で現像が可能な平版印刷版を以下の手順により、オフセット印刷機上で現像することを特徴とする平版印刷版の刷版の製造方法。

①該平版印刷版に熱／光の少なくとも一方のエネルギーを画像状に与える、

②印刷機の版胴に該平版印刷版を設置する、

③オフセット印刷機を始動し、インキローラは、版胴に接触させないで、

④版胴を回転させ、湿し水ローラを版胴に接触させ湿し水供給する、

⑤次いで、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像する。

【請求項2】水による現像が可能或いは印刷機上で現像が可能な平版印刷版を以下の手順で現像することを特徴とする平版印刷版の刷版の製造方法。

①印刷機の版胴に該平版印刷版を設置する、

②該平版印刷版に熱／光の少なくとも一方のエネルギーを画像状に与える、

③オフセット印刷機を始動し、インキローラは、版胴に接触させないで、

④版胴を回転させ、湿し水ローラを版胴に接触させ湿し水供給する、

⑤次いで、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像する。

【請求項3】版シリンダーを2～9回転させて湿し水を供給した後に、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像することを特徴とする請求項1又は2に記載の平版印刷版の刷版の製造方法。

【請求項4】湿し水を供給した後に、湿し水の供給を少なくとも1回転以上供給を停止し、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像することを特徴とする請求項1又は2に記載の平版印刷版の刷版の製造方法。

【請求項5】現像時の版面に対する湿し水膜厚が、0.5～3.0 $\mu$ mであることを特徴とする請求項1～3のいずれかに記載の平版印刷版の刷版の製造方法。

【請求項6】現像時の版面に対する印刷機における湿し水の設定量が、定常印刷時の湿し水の設定量に対して、1.05～3.00倍であることを特徴とする請求項1～4のいずれかに記載の平版印刷版の刷版の製造方法。

【請求項7】供給される湿し水の温度が10～30℃の範囲であることを特徴とする請求項1～5のいずれかに記載の平版印刷版の刷版の製造方法。

【請求項8】請求項1～7に記載の平版印刷版の刷版の製造方法で製造した刷版を現像した後、版胴にインキローラを接触させ、画像部にインキを供給し、受容要素へ移す段階を経て印刷物を製造することを特徴とする印刷

物の製造方法。

【請求項9】請求項1～7に記載の平版印刷版の刷版の製造方法で製造した刷版を、少なくとも2枚以上、受容要素を通過させた後に、インキローラを版胴に接触させることを特徴とする請求項7に記載の印刷物の製造方法。

【請求項10】印刷機の自動印刷機構において、①湿し水ローラ版面への接触、②版面への湿し水の供給、③インキローラの版面への接触がない状態での印刷、④インキローラを接触させ通常の印刷、の順に自動運転する構成であることを特徴とする印刷機の自動印刷機構。

【請求項11】請求項10に記載の「②版面への湿し水の供給」における版シリンダーの回転数が任意に設定できる構成であることを特徴とする請求項10に記載の印刷機の自動印刷機構。

【請求項12】請求項10に記載の「③インキローラの版面への接触がない状態での印刷」における印刷枚数が任意に設定できる構成であることを特徴とする請求項10又は11に記載の印刷機の自動印刷機構。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、平版印刷版の刷版の製造方法、印刷物の製造方法及び印刷機の自動印刷機構に関する。

【0002】

【従来の技術】従来、平版印刷版（PS版）は、画像露光工程、現像工程を経て印刷版を製造し、該印刷版を印刷機に取り付けて印刷物を製造する。通常、該印刷版の現像液には、アルカリ水溶液或いは有機溶剤等が使用され、作業者の安全や衛生面での問題がある。また、不要になった現像液の廃棄による環境面への影響も問題である。

【0003】このため、水で現像可能なPS版が提案されている。例えば、特開昭58-2847号：水溶性樹脂+水溶性ジアゾ+充填剤（下層）水軟化性高分子+ジアゾ樹脂（上層）、特開昭58-49940号：ジアゾ樹脂+水軟化性高分子化合物+感光性高分子化合物、特開昭58-2830号：油性ジアゾ樹脂+非感光性樹脂（吸湿率規定）、特開昭58-2834号：ジアゾ樹脂+アジドポリマー+水軟化性高分子化合物、等である。

【0004】また、「印刷機上で湿し水を利用して現像が可能」（又はそれに関連する）であることを特徴とし得る印刷版としては、例えば、米国特許第4,879,201号明細書、同第4,916,041号明細書、同第4,999,273号明細書及び同第5,258,263号明細書、特表平8-506191号、特表平8-507163号：マイクロカプセル化現像剤をポリマーレジストに取り込まれ、又はポリマーレジスト層上に形成した印刷機上現像可能な印刷版、特表平10-500

915号：水素結合を形成する現像能安定剤を有する、機上現像可能な印刷版、等である。

【0005】また、近年デジタル技術の発達により、デジタル情報を印刷原版に直接出力して、印刷版を製造する方法が次世代の技術として注目されている。一般にCTP (Computer to plate) あるいはDDPP (Digital direct printing plate) と呼ばれる技術である。例えば、特開平9-123387号、特開平9-123388号：熱の影響下で合体可能、疎水性熱可塑性重合体粒子を含む像形成層、光を熱に転換可能を含んでいる像形成要素、機上現像する方法が提案されている。

【0006】これら印刷機上現像の方法としては、印刷シリンダーを回転させながら該像形成層に水性湿し液及び／又はインキを供給することにより像形成要素を現像し、印刷物を得る方法が開示されている。

【0007】また、特開平9-123387号、特開平9-123388号では、像形成要素の設置後に、印刷機を始動させ、印刷機の湿し剤ローラを像形成要素上に落下させて湿し液を像形成要素に供給し、そして印刷シリンダーの10回の回転後にインキローラを落下させてインキを供給し、さらに10回の回転後に、非画像部の汚れのない印刷物が得られたことが開示されている。

【0008】しかしながら、このような現像方法では、湿し水ローラ或いは湿し水、インキローラ或いはインキが現像された層によって汚染され、高級カラー印刷の場合には、たとえ非画像部の汚れのない印刷物が得られたとしても、画像部が該現像物で汚染され、良好な印刷物を得るためには、更に数十～数百枚の印刷をするか、又はインキ及びインキローラを完全に洗浄する必要がある、コスト及び手間がかかり問題であった。

【0009】また、循環式の湿し水供給装置を装備した印刷機の場合には、現像物が湿し水に混入し、最終的には、湿し水特性を劣化させ、非画像部が汚れてしまう問題があった。

【0010】

【発明が解決しようとする課題】本発明の課題は、インキローラ、湿し水及びインキへの現像部の汚染を抑制し、正常な印刷物を短時間で得ることができる平版印刷版の刷版の製造方法、印刷物の製造方法及び印刷機の自動印刷機構を提供することにある。

【0011】

【課題を解決するための手段】本発明の上記課題は、  
1. 水による現像が可能或いは印刷機上で現像が可能な平版印刷版を以下の手順により、オフセット印刷機上で現像することを特徴とする平版印刷版の刷版の製造方法、

①該平版印刷版に熱／光の少なくとも一方のエネルギーを画像状に与える、

②印刷機の版胴に該平版印刷版を設置する、

③オフセット印刷機を始動し、インキローラは、版胴に接触させないで、

④版胴を回転させ、湿し水ローラを版胴に接触させ湿し水供給する、

⑤次いで、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像する。

【0012】2. 水による現像が可能或いは印刷機上で現像が可能な平版印刷版を以下の手順で現像することを特徴とする平版印刷版の刷版の製造方法、

①印刷機の版胴に該平版印刷版を設置する、

②該平版印刷版に熱／光の少なくとも一方のエネルギーを画像状に与える、

③オフセット印刷機を始動し、インキローラは、版胴に接触させないで、

④版胴を回転させ、湿し水ローラを版胴に接触させ湿し水供給する、

⑤次いで、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像する。

【0013】3. 版シリンダーを2～9回転させて湿し水を供給した後に、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像することを特徴とする上記1又は2に記載の平版印刷版の刷版の製造方法、

【0014】4. 湿し水を供給した後に、湿し水の供給を少なくとも1回転以上供給を停止し、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像することを特徴とする上記1又は2に記載の平版印刷版の刷版の製造方法、

【0015】5. 現像時の版面に対する湿し水膜厚が、0.5～3.0  $\mu\text{m}$ であることを特徴とする上記1～3のいずれかに記載の平版印刷版の刷版の製造方法、

【0016】6. 現像時の版面に対する印刷機における湿し水の設定量が、定常印刷時の湿し水の設定量に対して、1.05～3.00倍であることを特徴とする上記1～4のいずれかに記載の平版印刷版の刷版の製造方法、

【0017】7. 供給される湿し水の温度が10～30℃の範囲であることを特徴とする上記1～5のいずれかに記載の平版印刷版の刷版の製造方法、

【0018】8. 上記1～7に記載の平版印刷版の刷版の製造方法で製造した刷版を現像した後、版胴にインキローラを接触させ、画像部にインキを供給し、受容要素へ移す段階を経て印刷物を製造することを特徴とする印刷物の製造方法、

【0019】9. 上記1～7に記載の平版印刷版の刷版の製造方法で製造した刷版を、少なくとも2枚以上、受容要素を通過させた後に、インキローラを版胴に接触させることを特徴とする上記7に記載の印刷物の製造方法、

【0020】10. 印刷機の自動印刷機構において、①

湿し水ローラ版面への接触、②版面への湿し水の供給、③インキローラの版面への接触がない状態での印刷、④インキローラを接触させ通常の印刷、の順に自動運転する構成であることを特徴とする印刷機の自動印刷機構、【0021】11. 上記10に記載の「②版面への湿し水の供給」における版シリンダーの回転数が任意に設定できる構成であることを特徴とする上記10に記載の印刷機の自動印刷機構、

【0022】12. 上記10に記載の「③インキローラの版面への接触がない状態での印刷」における印刷枚数が任意に設定できる構成であることを特徴とする上記10又は11に記載の印刷機の自動印刷機構、の各々により達成される。

【0023】

【発明の実施の形態】以下、本発明の詳細について説明する。本発明に用いられる平版印刷版は、水による現像が可能又は印刷機上で水現像可能な平版印刷版であれば、いずれのものでもよい。例としては、従来の技術の項で述べた平版印刷版が挙げられる。

【0024】本発明に用いられる印刷機の基本構成としては、上記水現像可能な平版印刷版の刷版による印刷を行う構成の印刷機であればいずれのものでもよく、これに次の操作、例えば、以下の①～④操作が任意に行える印刷機であればよい。また、以下の①～④の順の操作を連続で自動的に作動させる機構が組み込まれた印刷機が特に好ましい。

【0025】①湿し水ローラ版面への接触

②版面への湿し水の供給

③インキローラの版面への接触がない状態での印刷

④インキローラを接触させる通常の印刷

一般的に、オフセット印刷機において印刷する方法は「①湿し水ローラ版面への接触」、「②版面への湿し水の供給」、「④インキローラを接触させる通常の印刷」、の順に行われ、版面画線部に付着したインキが受容要素へ転写することで、印刷物を製造することができる。また、近年では、これらの操作の自動化が進み、上記の①、②、④の手順を連続的に動作させる機構が備わった印刷機が主流である。従って、一般的なオフセット印刷機であれば、①、②、④の操作を行うことが可能である。

【0026】一方、本発明では、上記操作の「②版面への湿し水の供給」と「④インキローラを接触させる通常の印刷」との間に、「③インキローラの版面への接触がない状態での印刷」、を行う。これは、インキローラの接触／非接触が任意に操作できる印刷機であれば、「③インキローラの版面への接触がない状態での印刷」を行う事は可能である。

【0027】この「③インキローラの版面への接触がない状態での印刷」を行う事によって、水による現像可能な平版印刷版の現像物を受容要素に少なくとも1部を転

写させ現像を行う。これにより現像物がインキローラへ転移することがなくなり、インキローラへの汚染を抑制することができる。また、更に現像物を受容要素へ転写させることで、湿し水ローラの汚染も低減させる事が可能になる。

【0028】⑤上記①～④の他、必要に応じて版胴に設置された平版印刷版に熱／光の少なくとも一方のエネルギーを画像状に与える機構を備えた実施態様もある。また、該自動機構は、②の供給するときの版シリンダー回転数と③の印刷枚数を印刷機に装備された端末より任意に設定できるようにする。

【0029】使用例としては、この②の供給をするときの版シリンダー回転数を2～9回転に設定し、③の印刷枚数を5～30枚に設定する。次いで、画像露光後の印刷版を印刷機の版シリンダーに取り付け、次いで、該自動運転機構を作動させ印刷を行う。

【0030】上記印刷機の自動印刷機構において、①湿し水ローラ版面への接触、②版面への湿し水の供給、③インキローラの版面への接触がない状態での印刷、④インキローラを接触させ通常の印刷、の順に自動運転する構成であることを特徴とするのが、本発明に係る印刷機の自動印刷機構であり、上記の「②版面への湿し水の供給」における版シリンダーの回転数が任意に設定できる構成であることが好ましく、更に上記の「③インキローラの版面への接触がない状態での印刷」における印刷枚数が任意に設定できる構成であることもまた好ましい実施態様である。

【0031】次に、本発明の平版印刷版の刷版の製造方法、印刷物の製造方法について説明する。本発明は、水による現像が可能或いは印刷機上で現像が可能な平版印刷版を以下の手順により、オフセット印刷機上で現像することを特徴とする平版印刷版の刷版の製造方法である。

【0032】①まず「該平版印刷版に熱／光の少なくとも一方のエネルギーを画像状に与える」のであるが、この露光（熱）の手段は問わない。

②次に「印刷機の版胴に該平版印刷版を設置する」のであるが、この設置手段は印刷機に応じて多種多様である。

③次いで「オフセット印刷機を始動し、インキローラは、版胴に接触させないで」、

④「版胴を回転させ、湿し水ローラを版胴に接触させ湿し水供給する」のであるが、湿し水の供給手段も又、任意である。

⑤次いで、「受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像する」のである。

【0033】本発明の別の実施態様では、上記①と②とを逆の手順とする。即ち、

①まず「印刷機の版胴に該平版印刷版を設置する」、

②次いで「該平版印刷版に熱／光の少なくとも一方のエネルギーを画像状に与える」のである。従って、この実施態様を実施する印刷機は、露光（熱）機構を具備する必要がある。

【0034】上記いずれの実施態様であっても版シリンダーを2～9回転させて湿し水を供給した後に、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像することが好ましい。また、湿し水を供給した後に、湿し水の供給を少なくとも1回転以上供給を停止し、受容要素（印刷用紙）に現像部の少なくとも1部を転写する段階を経て、該平版印刷版を現像することも好ましい。

【0035】現像時の版面に対する湿し水膜厚は、0.5～3.0 $\mu$ mであることが好ましく、また、現像時の版面に対する印刷機における湿し水の設定量が、定常印刷時の湿し水の設定量に対して、1.05～3.00倍であることも好ましい実施態様である。更に、供給され

（コーティング組成物の製造）

ポリメタクリル酸メチルラテックス（平均粒子直径：90nm、20％水分散液）	6.75g
カーボンブラック（SD9020：大日本インキ製造社製、30％水分散液）	3.5g
グリセリン	1g
ポリビニルアルコール（KL-05：日本合成化学社製、ケン価度80％、5％水溶液）	12g
純水	73g

【0039】実施例1 上記平版印刷版を1050nmで発光する走査NdYLF赤外線レーザーにあてた（像形成要素表面上の走査速度4m/秒、スポット寸法15 $\mu$ m、200mWのエネルギー）。次いで、該印刷版を印刷機の版シリンダーに取り付けた。次いで、印刷機を始動し、湿し水ローラを版胴に接触させ湿し水供給を6回転行なった。次いで、インキローラを版面接触させないで、10枚の印刷を行い印刷用紙に現像部の少なくとも1部を転写し、次いで、インキローラを接触させ印刷を行い、5枚印刷後に非画像部の汚れがない印刷物が得られ、更に15枚印刷後には、インキの色濁り（汚染）のない正常な印刷物が得られた。

【0040】[印刷条件]

印刷機：三菱重工社製 DAIYA 1F-1  
印刷インキ：東洋インキ社製 ハイエコー62 白 M  
湿し水：東京インキ社製 SG-51 2％  
印刷用紙：コート紙

【0041】比較例1

画像露光後、該印刷版を印刷機の版シリンダーに取り付けた。次いで、印刷機を始動し、湿し水ローラを版胴に接触させ湿し水供給を1回転行なった。次いで、インキローラを接触させ印刷を行い、20枚印刷後の印刷物には、非画像部は問題なく現像され汚れのない印刷物が得られたが、現像部がインキ中に混入し印刷画像に濁り

る湿し水の温度が10～30℃の範囲であることが好ましい。

【0036】これらの平版印刷版の刷版の製造方法で製造した刷版を現像した後、版胴にインキローラを接触させ、画像部にインキを供給し、受容要素へ移す段階を経て印刷物を製造すればよい。上記平版印刷版の刷版の製造方法で製造した刷版を、少なくとも2枚以上、受容要素を通過させた後に、インキローラを版胴に接触させることは好ましい。

【0037】

【実施例】以下、本発明の実施例について説明するが、本発明はこれらの実施例に限定されるものではない。

【0038】[平版印刷版の作成] 厚さ0.24mmの粗面化された陽極酸化処理され親水化処理された、平版印刷版用のアルミニウム支持体（砂目）上に、下記組成物をワイヤーバーで塗布し、40℃で乾燥した。乾燥後の塗膜量は、1g/m<sup>2</sup>であった。

（汚染）が起こり、正常な印刷物は得られなかった。更に100枚の印刷を実施したが、インキの濁り（汚染）は低減するものの、正常な印刷物は得られなかった。

【0042】実施例2

該印刷版を印刷機の版シリンダーに取り付けた後に画像露光を行った以外は実施例1と同様に現像、印刷を行い、5枚印刷後に非画像部の汚れがない印刷物が得られ、更に15枚印刷後には、インキの色濁り（汚染）のない正常な印刷物が得られた。

【0043】比較例2

該印刷版を印刷機の版シリンダーに取り付けた後に画像露光を行った以外は比較例1と同様に現像、印刷を行い、20枚印刷後の印刷物には、非画像部は問題なく現像され汚れのない印刷物が得られたが、現像部がインキ中に混入し印刷画像に濁り（汚染）が起こり、正常な印刷物は得られなかった。更に100枚の印刷は実施したが、インキの濁り（汚染）は低減するものの、正常な印刷物は得られなかった。

【0044】実施例3

画像露光後、該印刷版を印刷機の版シリンダーに取り付けた。次いで、印刷機を始動し、湿し水ローラを版胴に接触させ湿し水供給を6回転行なった。次いで、湿し水ローラを版胴に接触した状態で湿し水の供給を停止し、インキローラを版面接触させないで、10枚の印刷を行い

印刷用紙に現像部の少なくとも1部を転写し、次いで、湿し水の供給を再開し、インキローラを接触させ印刷を行い、5枚印刷後に非画像部の汚れがない印刷物が得られ、更に10枚印刷後には、インキの色濁り（汚染）のない正常な印刷物が得られた。

#### 【0045】実施例4

画像露光を印刷機の版シリンダーに取り付けた後に行った以外は実施例3と同様に行い、実施例3と同様の結果が得られた。

#### 【0046】実施例5

画像露光後、該印刷版を印刷機の版シリンダーに取り付けた。次いで、印刷機を始動し、湿し水ローラを版胴に接触させ湿し水供給を6回転行なった。次いで、インキローラを版面接触させないで、10枚の印刷を行い印刷用紙に現像部の少なくとも1部を転写した。このとき版面上の湿し水膜厚を水膜厚測定器（KURABO INDUSTRIES LTD. 製）で測定したところ、1.4  $\mu\text{m}$ であった。次いで、インキローラを接触させ印刷を行い、6枚印刷後に非画像部の汚れがない印刷物が得られ、更に15枚印刷後には、インキの色濁り（汚染）のない正常な印刷物が得られた。

#### 【0047】比較例3

画像露光後、該印刷版を印刷機の版シリンダーに取り付けた。次いで、印刷機を始動し、湿し水ローラを版胴に接触させ湿し水供給を6回転行なった。次いで、インキローラを版面接触させないで、10枚の印刷を行い印刷用紙に現像部の少なくとも1部を転写した。このとき版面上の湿し水膜厚を水膜厚測定器（KURABO INDUSTRIES LTD. 製）で測定したところ、0.4  $\mu\text{m}$ であった。次いで、インキローラを接触させ印刷を行ったが、非画像部の汚れが発生し、十分現像が行われていなかった。またこの後、水膜厚を1.5  $\mu\text{m}$ まで上昇させたところ、非画像部の汚れはなくなったが、現像部がインキ中に混入し印刷画像に濁り（汚染）が起こり、正常な印刷物は得られなかった。

#### 【0048】実施例6

画像露光後、該印刷版を印刷機の版シリンダーに取り付けた。次いで、印刷機を始動し、湿し水供給量（設定値80）で湿し水ローラを版胴に接触させ湿し水供給を5回転行なった。次いで、インキローラを版面接触させないで、8枚の印刷を行い印刷用紙に現像部の少なくとも1部を次いで、湿し水供給量を（設定値50）に変更し、インキローラを接触させ印刷を行い、6枚印刷後に非画像部の汚れがない印刷物が得られ、更に13枚印刷後には、インキの色濁り（汚染）のない正常な印刷物が得られた。この後、更に印刷した場合の適正な湿し水の設定値は50であった。

#### 【0049】比較例4

湿し水の温度を35℃にした以外は、実施例1と同様に現像、印刷を行ったが、非画像部に汚れが発生し、正常な印刷物が得られなかった。

#### 【0050】実施例7

以下の①～④の自動運転機構を印刷機に装備した。

①湿し水ローラ版面への接触機構。

②版面への湿し水の供給機構。

③インキローラの版面への接触がない状態での印刷機構。

④インキローラを接触させる通常の印刷機構。

【0051】また、該自動機構は、②の供給するときの版シリンダー回転数と③の印刷枚数を印刷機に装備された端末より任意に設定できるようにした。この②の供給をするときの版シリンダー回転数を6回転に設定し、③の印刷枚数を10枚に設定した。次いで、上記画像露光後、該印刷版を印刷機の版シリンダーに取り付けた。次いで、該自動運転機構を作動させ印刷を行ったところ、15枚目に正常な印刷物が得られた。

#### 【0052】

【発明の効果】本発明によれば、インキローラ、湿し水及びインキへの現像部の汚染を抑制し、正常な印刷物を短時間で得ることができる平版印刷版の刷版の製造方法、印刷物の製造方法及び印刷機の自動印刷機構を提供できる。

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : KONICA CORP

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(72)Inventor : ISHII NOBUYUKI

(54) MANUFACTURE OF PRESS PLATE FOR LITHOGRAPHIC PRINTING PLATE,  
MANUFACTURE OF PRINTED MATTER, AND AUTOMATIC PRINTING MECHANISM OF  
PRINTER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a manufacturing method of the press plate of a lithographic printing plate, in which an ink roller, a dampening water and an ink are checked from being polluted by a developing part, and a normal printed matter can be obtained in a short time, the manufacturing method of a printed matter, and an automatic printing mechanism of a printer.

SOLUTION: A lithographic printing plate, which can be developed with water or on a printer, is developed on the offset printer in the following procedures: at least either one of heat and light is given in an image-like fashion; a lithographic printing plate is installed onto the plate cylinder of the printer; the offset printer is started and an ink roller is not in contact with the plate cylinder; the plate cylinder is started and the dampening water roller is brought into contact with the plate cylinder so as to feed a dampening water to the plate cylinder, and finally the lithographic printing plate is developed through a stage for transferring at least some part of a developing part onto an accepting element (a printing paper).

## LEGAL STATUS

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**CLAIMS**

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**[Claim(s)]**

[Claim 1] That the development by water is possible, or the manufacture approach of the lithographic plate of the lithography version characterized by developing the lithography version in which development is possible on the offset press with the following procedures on a printing machine.

\*\* offset press which gives one [ at least ] energy of heat/light to this lithography version in the shape of an image and which installs this lithography version in the printing cylinder of \*\* printing machine is put into operation. \*\* An inking roller It \*\* Ranks second and this lithography version is developed through the phase which \*\* printing cylinder is rotated and a dampening water roller is contacted to a printing cylinder without making a printing cylinder contact, and carries out dampening water supply and which imprints the at least 1 of the development section section to an acceptance element (print sheet).

[Claim 2] That the development by water is possible, or the manufacture approach of the lithographic plate of the lithography version characterized by developing the lithography version in which development is possible in the following procedures on a printing machine.

\*\* offset press which installs this lithography version in the printing cylinder of a printing machine and which gives one [ at least ] energy of heat/light to the \*\* this lithography version in the shape of an image is put into operation. \*\* An inking roller It \*\* Ranks second and this lithography version is developed through the phase which \*\* printing cylinder is rotated and a dampening water roller is contacted to a printing cylinder without making a printing cylinder contact, and carries out dampening water supply and which imprints the at least 1 of the development section section to an acceptance element (print sheet).

[Claim 3] The manufacture approach of the lithographic plate of the lithography version according to claim 1 or 2 characterized by developing this lithography version through the phase which imprints the at least 1 of the development section section to an acceptance element (print sheet) after rotating a version cylinder 2-9 times and supplying dampening water.

[Claim 4] \*\*\*\*\* 1 characterized by developing this lithography version through the phase which suspends at least one or more revolution supply for supply of dampening water, and imprints the at least 1 of the development section section to an acceptance element (print sheet) after supplying dampening water, or the manufacture approach of the lithographic plate of the lithography version given in 2.

[Claim 5] The manufacture approach of the lithographic plate of the lithography version according to claim 1 to 3 that dampening water thickness to the printing plate at the time of development is characterized by being 0.5-3.0 micrometers.

[Claim 6] The manufacture approach of the lithographic plate of the lithography version according to claim 1 to 4 that the amount of setup of the dampening water in the printing machine to the printing plate at the time of development is characterized by being 1.05 to 3.00 times to the amount of setup of the dampening water at the time of stationary printing.

[Claim 7] The manufacture approach of the lithographic plate of the lithography version according to claim 1 to 5 characterized by being the range whose temperature of the dampening water supplied is 10-30 degrees C.

[Claim 8] The manufacture approach of the printed matter characterized by manufacturing printed matter through the phase which an inking roller is contacted to a printing cylinder, supplies ink to the image section, and is moved to an acceptance element after developing the lithographic plate manufactured by the manufacture approach of the lithographic plate of the lithography version according to claim 1 to 7.

[Claim 9] The manufacture approach of the printed matter according to claim 7 characterized by contacting an inking roller to a printing cylinder after passing at least two or more sheets and an acceptance element for the lithographic plate manufactured by the manufacture approach of the lithographic plate of the lithography version according to claim 1 to 7.

[Claim 10] Printing in the condition that there are not contact to \*\* dampening water roller printing plate, supply of the dampening water to \*\* printing plate, and contact to the printing plate of \*\* inking roller in the automatic print station of a printing machine, the automatic print station of the printing machine characterized by being the configuration which \*\* inking roller is contacted and carries out unattended operation to the order of the usual printing \*\*.

[Claim 11] The automatic print station of the printing machine according to claim 10 characterized by the rotational frequency of the version cylinder in "supply of the dampening water to \*\* printing plate" according to claim 10 being the configuration which can be set as arbitration.

[Claim 12] The automatic print station of the printing machine according to claim 10 or 11 characterized by being the configuration which the printing number of sheets in "printing in the condition that there is no contact to the printing plate of \*\* inking roller" according to claim 10 can set as arbitration.

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[Translation done.]

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the manufacture approach of the lithographic plate of the lithography version, the manufacture approach of printed matter, and the automatic print station of a printing machine.

[0002]

[Description of the Prior Art] Conventionally, the lithography version (PS plate) manufactures the printing version through an image exposure process and a development process, attaches this printing version in a printing machine, and manufactures printed matter. Usually, an alkali water solution or an organic solvent is used for the developer of this printing version, and there is a problem in an operator's insurance and health side in it. Moreover, the effect on the environmental side by abandonment of the developer which became unnecessary is also a problem.

[0003] For this reason, the PS plate in which development is possible is proposed with water. For example, a JP,58-49940,A:diazo resin [ JP,58-2847,A:water-soluble-resin + water solubility diazo + bulking agent (lower layer) water-softening nature giant-molecule + diazo resin (upper layer) and ] + water-softening nature high-molecular-compound + photosensitivity high molecular compound, JP,58-2830,A:oil-solubility diazo resin + nonphotosensitivity resin (moisture-absorption convention), JP,58-2834,A: It is a diazo resin + azide polymer + water-softening nature high molecular compound etc.

[0004] As the printing version which can be characterized by being moreover, possible [ development ] using dampening water" (or it relating to it) in "printing machine up For example, a U.S. Pat. No. 4,879,201 specification, a 4,916,041 specification, a 4,999,273 specification and a 5,258,263 specification, \*\*\*\*\* No. 506191 [ eight to ], \*\*\*\*\* [ No. 507163 / eight to ] : the printing version which was incorporated by the polymer resist or formed the microencapsulation developer on the polymer resist layer and in which development on a printing machine is possible, \*\*\*\*\* No. 500915 [ ten to ]: It is the printing version which has the development ability stabilizer which forms hydrogen bond and in which development on board is possible.

[0005] Moreover, the approach of carrying out the direct output of the digital information to the printing original edition, and manufacturing the printing version by development of digital technique in recent years attracts attention as a next-generation technique. It is the technique generally called CPT (Computer to plate) or DDPP (Digitaldirect printing plate). For example, JP,9-123387,A, JP,9-123388,A: The image formation element which contains conversion \*\*\*\* in heat, and the approach of carrying out on-board development are proposed under the effect of heat in the coalesce possibility of, the image formation layer containing a hydrophobic thermoplasticity polymer particle, and light.

[0006] As the approach of development on these printing machines, rotating a printing cylinder, by supplying aquosity \*\*\*\*\* and/or ink to this image formation layer, an image formation element is developed and the method of obtaining printed matter is indicated.

[0007] Moreover, by JP,9-123387,A and JP,9-123388,A, a printing machine is started after installation of an image formation element, a printing machine wets, a \*\* roller is dropped on an

image formation element, and is wetted, liquid is supplied to an image formation element, and an inking roller is dropped after ten rotations of a printing cylinder, ink is supplied, and it is indicated after ten more rotations that printed matter without the dirt of the non-image section was obtained.

[0008] However, with such a development approach, they are a dampening water roller or dampening water, The image section was polluted with this development object, even if the printed matter which does not have dirt of the non-image section even if was obtained in high-class color printing, it was polluted by the layer in which an inking roller or ink was developed, in order to obtain good printed matter, printing of dozens - 100 numbers needed to be carried out further, or ink and an inking roller needed to be washed completely, and cost and time and effort were taken, and it was a problem.

[0009] Moreover, the development object mixed in dampening water, finally, in the case of the printing machine which equipped the dampening water feeder of a circuit system, the dampening water property was degraded, and there was a problem on which the non-image section becomes dirty in it.

[0010]

[Problem(s) to be Solved by the Invention] The technical problem of this invention controls contamination of the development section to an inking roller, dampening water, and ink, and is to offer the manufacture approach of the lithographic plate of the lithography version that normal printed matter can be obtained in a short time, the manufacture approach of printed matter, and the automatic print station of a printing machine.

[0011]

[Means for Solving the Problem] The lithography version in which development is possible on that the development by 1. water is possible for the above-mentioned technical problem of this invention, or a printing machine with the following procedures The manufacture approach of the lithographic plate of the lithography version characterized by developing negatives on the offset press, \*\* offset press which gives one [ at least ] energy of heat/light to this lithography version in the shape of an image and which installs this lithography version in the printing cylinder of \*\* printing machine is put into operation. \*\* An inking roller It \*\* Ranks second and this lithography version is developed through the phase which \*\* printing cylinder is rotated and a dampening water roller is contacted to a printing cylinder without making a printing cylinder contact, and carries out dampening water supply and which imprints the at least 1 of the development section section to an acceptance element (print sheet).

[0012] 2. That Development by Water is Possible, or Manufacture Approach of Lithographic Plate of Lithography Version Characterized by Developing Lithography Version in which Development is Possible in the Following Procedures on Printing Machine, \*\* offset press which installs this lithography version in the printing cylinder of a printing machine and which gives one [ at least ] energy of heat/light to the \*\* this lithography version in the shape of an image is put into operation. \*\* An inking roller It \*\* Ranks second and this lithography version is developed through the phase which \*\* printing cylinder is rotated and a dampening water roller is contacted to a printing cylinder without making a printing cylinder contact, and carries out dampening water supply and which imprints the at least 1 of the development section section to an acceptance element (print sheet).

[0013] 3. Above 1 Characterized by Developing this Lithography Version through Phase Which Imprints at Least 1 of Development Section Section to Acceptance Element (Print Sheet) after Rotating Version Cylinder 2-9 Times and Supplying Dampening Water, or Manufacture Approach of Lithographic Plate of Lithography Version Given in 2, [0014] 4. \*\*\*\*\* 1 Characterized by Developing this Lithography Version through Phase Which Suspends at Least One or More Revolution Supply for Supply of Dampening Water, and Imprints at Least 1 of Development Section Section to Acceptance Element (Print Sheet) after Supplying Dampening Water, or Manufacture Approach of Lithographic Plate of Lithography Version Given in 2, [0015] 5. Manufacture Approach of Lithographic Plate of Lithography Version Given in Either of the above 1-3 to which Dampening Water Thickness to Printing Plate at Time of Development is Characterized by being 0.5-3.0 Micrometers, [0016] 6. Manufacture Approach of Lithographic

Plate of Lithography Version Given in Either of the above 1-4 to which Amount of Setup of Dampening Water in Printing Machine to Printing Plate at Time of Development is Characterized by being 1.05 to 3.00 Times to Amount of Setup of Dampening Water at Time of Stationary Printing, [0017] 7. Manufacture Approach of Lithographic Plate of Lithography Version Given in Either of the above 1-5 Characterized by being Range whose Temperature of Dampening Water Supplied is 10-30 Degrees C, [0018] 8. Manufacture Approach of Printed Matter Characterized by Manufacturing Printed Matter through Phase Which Inking Roller is Contacted to Printing Cylinder, Supplies Ink to Image Section, and is Moved to Acceptance Element after Developing Lithographic Plate Manufactured by Manufacture Approach of Lithographic Plate of Lithography Version Publication to above 1-7, [0019] 9. Manufacture Approach of Printed Matter Given in above 7 Characterized by Contacting Inking Roller to Printing Cylinder after Making above 1-7 Pass at Least Two or More Sheets and Acceptance Element for Lithographic Plate Manufactured by Manufacture Approach of Lithographic Plate of Lithography Version Publication, [0020] 10. Printing in the Condition that There are not Contact to \*\* Dampening Water Roller Printing Plate, Supply of Dampening Water to \*\* Printing Plate, and Contact to Printing Plate of \*\* Inking Roller in Automatic Print Station of Printing Machine, Automatic Print Station of Printing Machine Characterized by being Configuration Which \*\* Inking Roller is Contacted and Carries Out Unattended Operation to Order of the Usual Printing \*\*, [0021] 11. Automatic Print Station of Printing Machine Given in above 10 Characterized by Rotational Frequency of Version Cylinder in "Supply of Dampening Water to \*\* Printing Plate" Given in above 10 being Configuration Which Can be Set as Arbitration, [0022] 12. It is attained by each of automatic print station \*\* of a printing machine the above 10 characterized by being the configuration which the printing number of sheets in "printing in the condition that there is no contact to the printing plate of \*\* inking roller" given in the above 10 can set as arbitration, or given in 11.

[0023]

[Embodiment of the Invention] Hereafter, the detail of this invention is explained. As long as the lithography version used for this invention is the lithography version in which water development is [ that the development by water is possible, or ] possible on a printing machine, which thing is sufficient as it. As an example, the lithography version stated by the term of a Prior art is mentioned.

[0024] As long as it is the printing machine of a configuration of performing printing by the lithographic plate of the lithography version in which the above-mentioned water development is possible as a basic configuration of the printing machine used for this invention, which thing may be used, and what is necessary is just the printing machine which the next actuation, for example, following \*\* - \*\* actuation, can perform to this at arbitration. Moreover, especially the printing machine with which the device in which actuation of the order of following \*\* - \*\* was operated continuously automatically was incorporated is desirable.

[0025] \*\* the usual printing to which the printing \*\* inking roller in the condition that there is no contact to the printing plate of the supply \*\* inking roller of the dampening water to the contact \*\* printing plate to a dampening water roller printing plate is contacted -- generally The approach of printing in the offset press is performed in order of "contact to \*\* dampening water roller printing plate", "supply of the dampening water to \*\* printing plate", and "usual printing to which \*\* inking roller is contacted" \*\*, and printed matter can be manufactured because the ink adhering to the printing plate streak section imprints to an acceptance element. Moreover, the printing machine equipped with the device in which such hands off operation progresses and the procedure of above \*\*, \*\*, and \*\* is continuously operated in recent years is in use. Therefore, if it is the common offset press, it is possible to perform actuation of \*\*, \*\*, and \*\*.

[0026] On the other hand, in this invention, "printing in the condition that there is no contact to the printing plate of \*\* inking roller" is performed between "supply of the dampening water to \*\* printing plate" of the above-mentioned actuation, and the "usual printing to which \*\* inking roller is contacted." This is possible for performing "printing in the condition that there is no contact to the printing plate of \*\* inking roller", if contact/non-contact one of an inking roller are the printing machines which can be operated to arbitration.

[0027] By performing this "printing in the condition that there is no contact to the printing plate of \*\* inking roller", negatives are developed by making an acceptance element imprint the at least 1 section in the development object of the lithography version by water in which development is possible. It is lost that a development object transfers to an inking roller by this, and the contamination to an inking roller can be controlled. Furthermore, it becomes possible by making a development object imprint to an acceptance element to also reduce contamination of a dampening water roller.

[0028] \*\* There is also an embodiment equipped with the device in which one [ at least ] energy of heat/light is given to the lithography version installed in the printing cylinder if needed besides the above-mentioned \*\* in the shape of an image. Moreover, it enables it to set this automechanism as arbitration from the terminal equipped with a version cylinder rotational frequency in case \*\* supplies, and the printing number of sheets of \*\* by the printing machine.

[0029] As an example of use, the version cylinder rotational frequency when supplying this \*\* is set as two to 9 rotation, and the printing number of sheets of \*\* is set as 5-30 sheets.

Subsequently, the printing version after image exposure is attached in the version cylinder of a printing machine, and, subsequently it prints by operating this unattended operation device.

[0030] In the automatic print station of the above-mentioned printing machine The contact to \*\* dampening water roller printing plate, \*\* Supply of the dampening water to a printing plate, printing in the condition that there is no contact to the printing plate of \*\* inking roller, \*\* That it is characterized by being the configuration which an inking roller is contacted and carries out unattended operation to the order of the usual printing \*\* It is desirable that it is the automatic print station of the printing machine concerning this invention, and the rotational frequency of the version cylinder in the above-mentioned "supply of the dampening water to \*\* printing plate" is the configuration which can be set as arbitration. Furthermore, it is also a desirable embodiment that it is the configuration which the printing number of sheets in the above-mentioned "printing in the condition that there is no contact to the printing plate of \*\* inking roller" can set as arbitration.

[0031] Next, the manufacture approach of the lithographic plate of the lithography version of this invention and the manufacture approach of printed matter are explained. This invention is that the development by water is possible, or the manufacture approach of the lithographic plate of the lithography version characterized by developing the lithography version in which development is possible on the offset press with the following procedures on a printing machine.

[0032] \*\* Although it is that of "giving one [ at least ] energy of heat/light to this lithography version in the shape of an image" first, don't ask the means of this exposure (heat).

\*\* Although it is next that of "installing this lithography version in the printing cylinder of a printing machine", this installation means is various according to a printing machine.

\*\* Subsequently, although it is that of \*\* "a printing cylinder is rotated, a dampening water roller is contacted to a printing cylinder, and dampening water supply is carried out", the supply means of dampening water is [ "without it puts the offset press into operation and contacts an inking roller to a printing cylinder" ] also arbitrary.

\*\* Subsequently it is that of "developing this lithography version through the phase which imprints the at least 1 of the development section section to an acceptance element (print sheet)."

[0033] Let the above-mentioned \*\* and \*\* be reverse procedures in the another embodiment of this invention. namely, \*\* -- \*\* "installs this lithography version in the printing cylinder of a printing machine" first -- subsequently it is that of "giving one [ at least ] energy of heat/light to this lithography version in the shape of an image." Therefore, the printing machine which carries out this embodiment needs to possess an exposure (heat) device.

[0034] the above -- pass the phase which imprints the at least 1 of the development section section to an acceptance element (print sheet) after rotating a version cylinder 2-9 times and supplying dampening water, even if it is which embodiment -- it is desirable to develop this lithography version. Moreover, after supplying dampening water, it is also desirable to develop this lithography version through the phase which suspends at least one or more revolution supply for supply of dampening water, and imprints the at least 1 of the development section section to

an acceptance element (print sheet).

[0035] The dampening water thickness to the printing plate at the time of development is an embodiment also with that desirable and it is 0.5–3.0 micrometers and desirable it being also 1.05 to 3.00 times the amount of setup of the dampening water in the printing machine to the printing plate at the time of development of this to the amount of setup of the dampening water at the time of stationary printing. Furthermore, it is desirable that it is the range whose temperature of the dampening water supplied is 10–30 degrees C.

[0036] What is necessary is to contact an inking roller to a printing cylinder, to supply ink to the image section, and just to manufacture printed matter through the phase moved to an acceptance element, after developing the lithographic plate manufactured by the manufacture approach of the lithographic plate of these lithography versions. After passing at least two or more sheets and an acceptance element for the lithographic plate manufactured by the manufacture approach of the lithographic plate of the above-mentioned lithography version, it is desirable to contact an inking roller to a printing cylinder.

[0037]

[Example] Hereafter, although the example of this invention is explained, this invention is not limited to these examples.

[0038] The following constituent was applied with the wire bar on the aluminum base material with a [creation of lithography version] thickness of 0.24mm for the lithography [ which was split-face-ized ] versions by which anodizing was carried out and hydrophilization processing was carried out (grain), and it dried at 40 degrees C. The amount of paint films after desiccation was 1 g/m<sup>2</sup>.

(Manufacture of a coating constituent)

Polymethyl-methacrylate latex (mean particle diameter: 90nm, 20% moisture \*\*\*\*) 6.75g Carbon black (SD9020: the Dainippon Ink manufacture company make, 30% water dispersion)

3.5g Glycerol 1g Polyvinyl alcohol (KL-05: Japanese synthetic chemistry company make, the 80% of the degrees of Ken \*\*, 5% water solution) 12g Pure water 73g [0039] The example 1 above-mentioned lithography version was hit to the scan NdYLF infrared laser which emits light by 1050nm (the scan speed of 4m/second on an image formation element front face, the spot dimension of 15 micrometers, 200mW energy). Subsequently, this printing version was attached in the version cylinder of a printing machine. Subsequently, a printing machine is put into operation, a dampening water roller is contacted to a printing cylinder, and it is 6 rotation \*\*\*\*\* about dampening water supply. Subsequently, printing of ten sheets was performed and the at least 1 of the development section section was imprinted to the print sheet without carrying out printing plate contact of the inking roller, and subsequently it printed by having contacted the inking roller, the printed matter which does not have dirt of the non-image section after five-sheet printing was obtained, and normal printed matter without color muddiness (contamination) of ink was obtained after 15 more sheet printing.

[0040] [Printing conditions]

Printing machine: Mitsubishi Heavy Industries, LTD. make DAIYA 1 F-1 printing ink: Toyo Ink make Yes, echo 62 White M dampening water: Tokyo Printing Ink Mfg. Co., Ltd. make SG-51 2% print sheet: Coat paper [0041] This printing version was attached in the version cylinder of a printing machine after example of comparison 1 image exposure. Subsequently, a printing machine is put into operation, a dampening water roller is contacted to a printing cylinder, and it is 1 rotation \*\*\*\*\* about dampening water supply. Subsequently, although the printed matter which prints by contacting an inking roller, and the non-image section is developed satisfactory by the printed matter after 20-sheet printing, and does not have dirt was obtained, the development section mixed into ink, muddiness (contamination) took place to the printing image, and normal printed matter was not obtained. Although printing of 100 more sheets was carried out, and muddiness (contamination) of ink was reduced, normal printed matter was not obtained.

[0042] Except having performed image exposure, after attaching the example 2 this printing version in the version cylinder of a printing machine, development and printing were performed like the example 1, the printed matter which does not have dirt of the non-image section after five-sheet printing was obtained, and normal printed matter without color muddiness

(contamination) of ink was obtained after 15 more sheet printing.

[0043] Although the printed matter which performs development and printing like the example 1 of a comparison except having performed image exposure after attaching the example of comparison 2 this printing version in the version cylinder of a printing machine, and the non-image section is developed satisfactory by the printed matter after 20-sheet printing, and does not have dirt was obtained, the development section mixed into ink, muddiness (contamination) took place to the printing image, and normal printed matter was not obtained. Although printing of 100 more sheets was carried out, and muddiness (contamination) of ink was reduced, normal printed matter was not obtained.

[0044] This printing version was attached in the version cylinder of a printing machine after example 3 image exposure. Subsequently, a printing machine is put into operation, a dampening water roller is contacted to a printing cylinder, and it is 6 rotation \*\*\*\*\* about dampening water supply. Subsequently, it is without it suspends supply of dampening water where a printing cylinder is contacted in a dampening water roller, and it carries out printing plate contact of the inking roller, Printing of ten sheets was performed, the at least 1 of the development section section was imprinted to the print sheet, subsequently, supply of dampening water was resumed, it printed by having contacted the inking roller, the printed matter which does not have dirt of the non-image section after five-sheet printing was obtained, and normal printed matter without color muddiness (contamination) of ink was obtained after ten more sheet printing.

[0045] Except having carried out, after attaching example 4 image exposure in the version cylinder of a printing machine, it carried out like the example 3 and the same result as an example 3 was obtained.

[0046] This printing version was attached in the version cylinder of a printing machine after example 5 image exposure. Subsequently, a printing machine is put into operation, a dampening water roller is contacted to a printing cylinder, and it is 6 rotation \*\*\*\*\* about dampening water supply. Subsequently, printing of ten sheets was performed and the at least 1 of the development section section was imprinted to the print sheet without carrying out printing plate contact of the inking roller. It was 1.4 micrometers when the dampening water thickness on a printing plate was measured with the water screen thickness measuring instrument (product made from KURABO INDUSTRIES LTD.) at this time. Subsequently, it printed by having contacted the inking roller, the printed matter which does not have dirt of the non-image section after six-sheet printing was obtained, and normal printed matter without color muddiness (contamination) of ink was obtained after 15 more sheet printing.

[0047] This printing version was attached in the version cylinder of a printing machine after example of comparison 3 image exposure. Subsequently, a printing machine is put into operation, a dampening water roller is contacted to a printing cylinder, and it is 6 rotation \*\*\*\*\* about dampening water supply. Subsequently, printing of ten sheets was performed and the at least 1 of the development section section was imprinted to the print sheet without carrying out printing plate contact of the inking roller. It was 0.4 micrometers when the dampening water thickness on a printing plate was measured with the water screen thickness measuring instrument (product made from KURABO INDUSTRIES LTD.) at this time. Subsequently, although printed by contacting an inking roller, the dirt of the non-image section was generated and development was not performed enough. Moreover, although the dirt of the non-image section was lost when water screen thickness was raised to 1.5 micrometers after this, the development section mixed into ink, muddiness (contamination) took place to the printing image, and normal printed matter was not obtained.

[0048] This printing version was attached in the version cylinder of a printing machine after example 6 image exposure. Subsequently, a printing machine is put into operation, a dampening water roller is contacted to a printing cylinder by the dampening water amount of supply (set point 80), and it is 5 rotation \*\*\*\*\* about dampening water supply. Subsequently, printing of eight sheets was performed, the at least 1 of the development section section was changed into the print sheet, and subsequently to (the set point 50) the dampening water amount of supply was changed without carrying out printing plate contact of the inking roller, and it printed by having contacted the inking roller, the printed matter which does not have dirt of the non-image



section after six-sheet printing was obtained, and normal printed matter without color muddiness (contamination) of ink was obtained after 13 more sheet printing. Then, the set point of the proper dampening water at the time of printing further was 50.

[0049] Other than having made temperature of example of comparison 4 dampening water into 35 degrees C, although development and printing were performed like the example 1, dirt was generated in the non-image section and normal printed matter was not obtained.

[0050] The printing machine was equipped with the seven or less-example unattended operation device of \*\* - \*\*.

\*\* The contact device to a dampening water roller printing plate.

\*\* The feeder style of the dampening water to a printing plate.

\*\* The print station in the condition that there is no contact to the printing plate of an inking roller.

\*\* The usual print station to which an inking roller is contacted.

[0051] Moreover, it enabled it to set this automechanism as arbitration from the terminal equipped with a version cylinder rotational frequency in case \*\* supplies, and the printing number of sheets of \*\* by the printing machine. The version cylinder rotational frequency when supplying this \*\* was set as six rotations, and the printing number of sheets of \*\* was set as ten sheets. Subsequently, this printing version was attached in the version cylinder of a printing machine after the above-mentioned image exposure. Subsequently, when printed by operating this unattended operation device, normal printed matter was obtained by the 15th sheet.

[0052]

[Effect of the Invention] According to this invention, contamination of the development section to an inking roller, dampening water, and ink is controlled, and the manufacture approach of the lithographic plate of the lithography version that normal printed matter can be obtained in a short time, the manufacture approach of printed matter, and the automatic print station of a printing machine can be offered.

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[Translation done.]